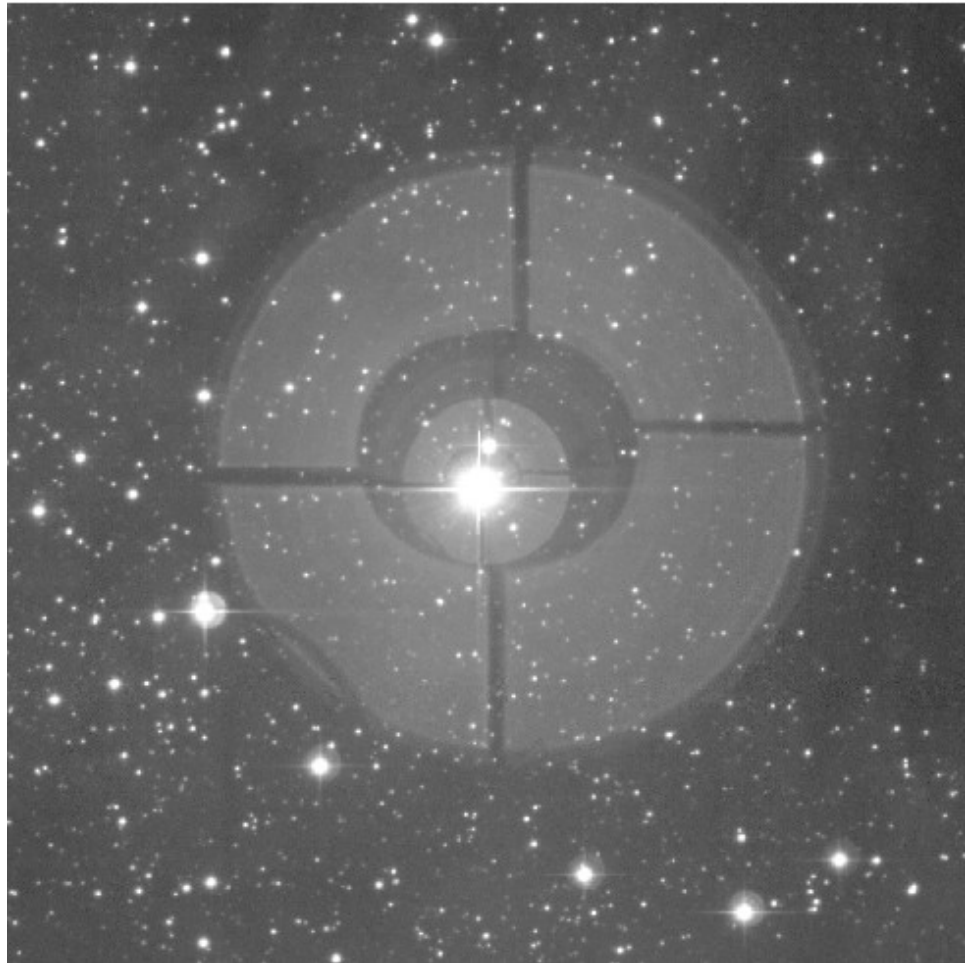# Star Flat Work @ LPNHE

(N. Regnault, P. Astier)

Ongoing Work

- Downloaded the Star flat observations
    - 2012-11-20 & 2012-11-21 (grizY)
- Tweaking the SNLS photometry pipeline
    - → flat fielding
    - → photometry (star aperture fluxes)
    - → astrometry
- Tweaking the SNLS calibration pipeline
    - → star flats
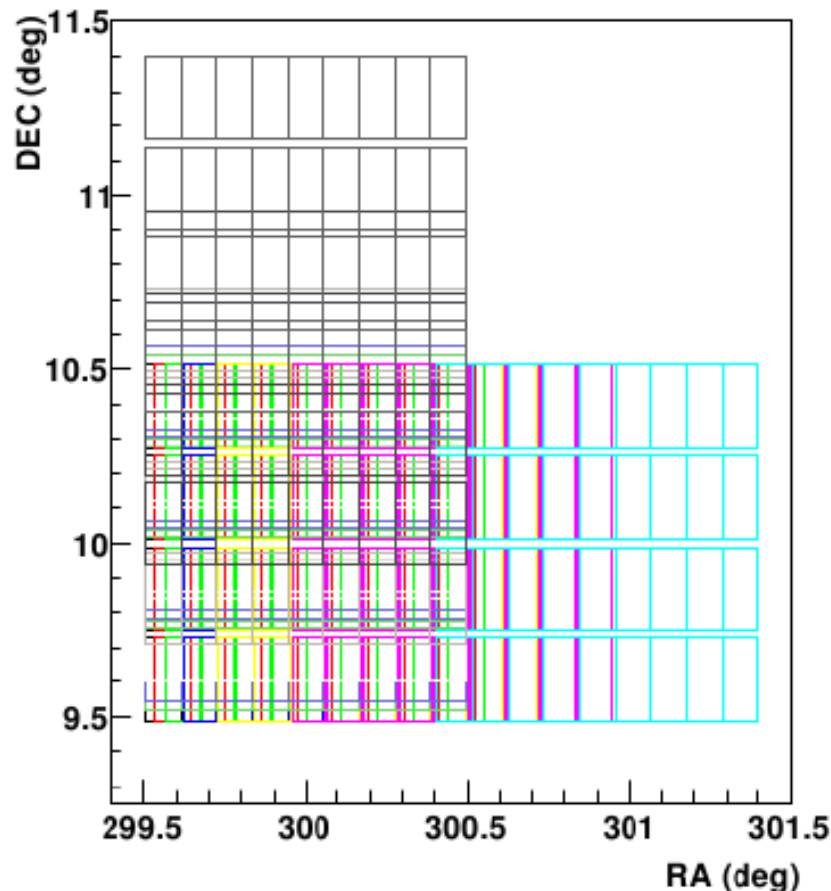
Mapping the instrument response

- **Twilights**
  - Affected by plate scale variations (well measured)
  - contaminated by ghosts (reflections in the WFC).
  - May be small with DECal dome flats.

- **Filter uniformity ?**
  - e.g. MegaCam filters vary by ~ 5-nm from center to corner.
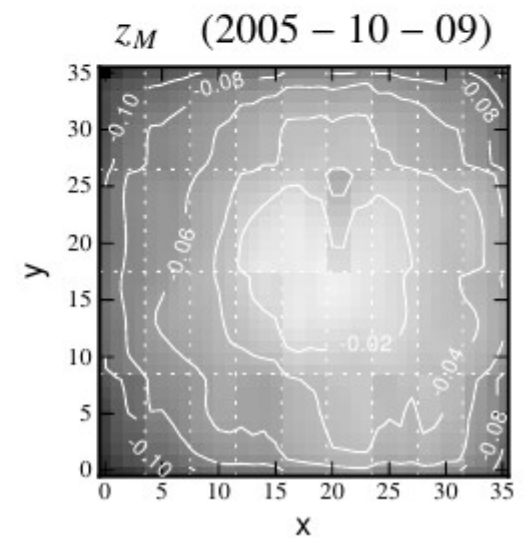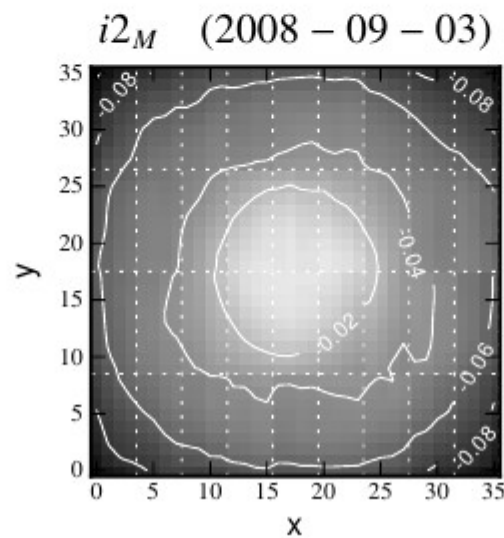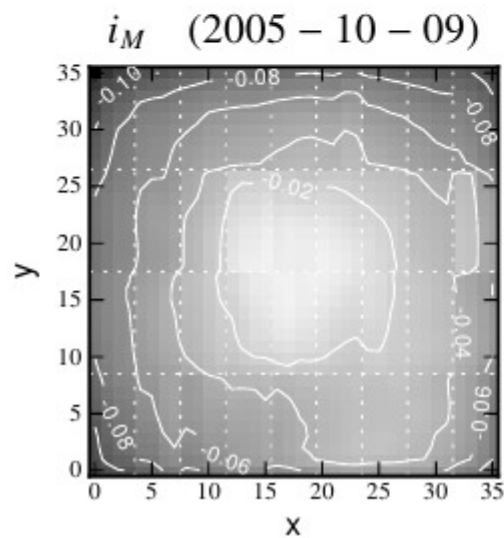
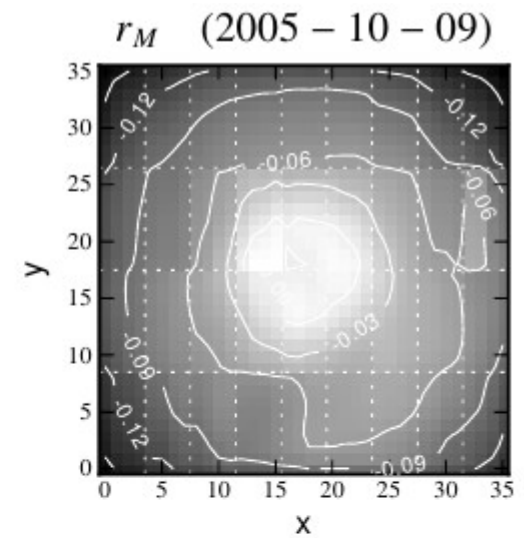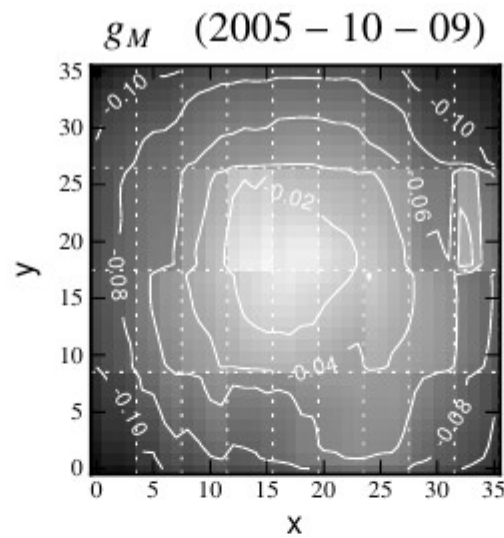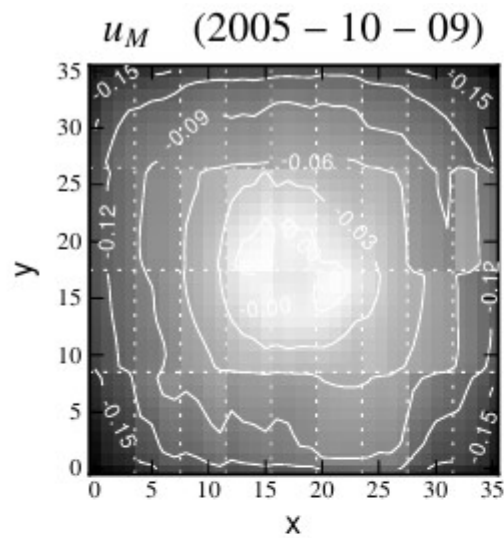# Mapping the instrument response

- **Dithered observations of dense stellar fields**

  – Logarithmically Increasing steps (1.5' → 0.5 deg)

  – Observed every ~ 6 months

- **Model**
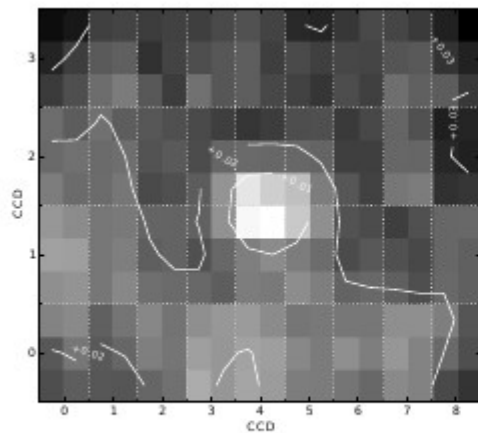
$$m(x) = m(x_0) + \delta zp(x) + \delta k(x) \times col$$

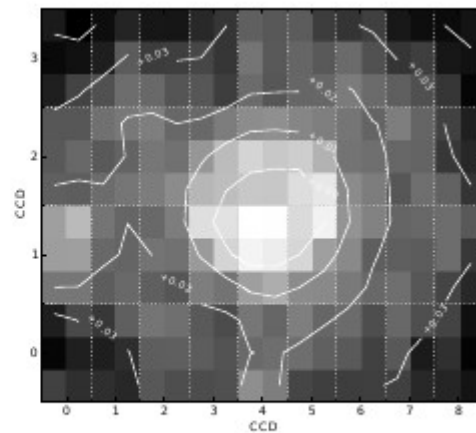Star mags @ center
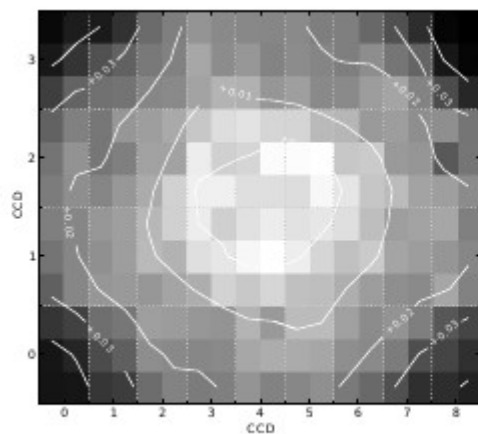(~ 100,000 pars)

Maps
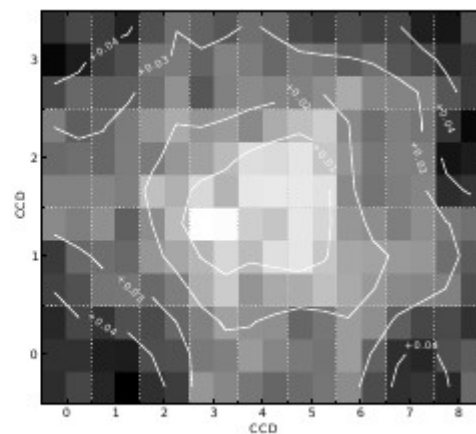(~ 100 pars)

Plate scale + ghosts

Filter variations (in WL)

(a) $\delta k_{g,g-r}(\mathbf{x})$

(b) $\delta k_{r,r-i}(\mathbf{x})$

(c) $\delta k_{i,r-i}(\mathbf{x})$

(d) $\delta k_{z,i-z}(\mathbf{x})$

Random Remarks

- **Stellar density** seems a bit low (compared to what we had in SNLS)

- Having a **large color range** in fundamental to test filter uniformity

  → outskirsts of the LMC ?

  → open cluster ?

- Star flat is very sensitive to **variations of the observing conditions** (atmosphere + seeing)

Random Remarks

- It may be worth optimizing the dithering pattern to become more insensitive to seeing / atmosphere variations.

- We have found that the star flats depend slightly on the star flux estimator...

    → We have to keep this in mind when comparing the outputs on the 2012-11-20/21 ditherings

    → and later, when incorporating the star flats in the main pipeline.